



Db	121	ckppdgffsnetstskapcrhntcsvfgllltckgnatbhnicsgnsestqkcgldvlt	100
Qy	142	CKRPDGFSSNETSSKAPCRKHTNCSVFGLLLTQGNATHDNICSGNSESTQKCGIDVLT	201
Db	181	ceafaffravptkffpmnlsvlvdnlpgtkvnaesverikrqhssgqctfgllklywkhq	240
Qy	202	CEAFAPRAVPTKFTPMNLSTVLVNDNPGTKNAASVERIKRQHSQGCOTQQLKMKHQN	261
Db	241	kdgdlvkkliqldiclsenvgrhigbanltfeqlrsimeslpqkkygaedleklixckp	300
Qy	262	KDODIVKRIIODIDLCENSVGRHIGBANLTPEQLRSIMESLPQKKGVAEDIKTIKACP	321
Db	301	sdgllkllslvrknngddctkglmahlnsktyhfpkvtvqslkklrlfhnstmykly	360
Qy	322	SDOILKLLSLVRKNNGDDTLKGLMAHLNKSHTYHPKVTYQSLKKTIRFLHSPTMYKLY	381
Db	361	qklftemignvgvskiscsl	380
Qy	382	QKLFLEMIGNVOVSKITISCL	401
..-JULT	2		
ID	R99925	standard: Protein: 401 AA.	
AC	R99925		
DT	22-APR-1997	(first entry)	
DE	Full length osteoclastogenesis inhibitory factor.		
KM	Osteoclastogenesis inhibitory factor: OCIF; heparin, bone resorption;		
OS	Homo sapiens.		
FH	Key	Location/Qualifiers	
FT	peptide	1..21	
FT	/note="Signal peptide"	22..401	
FT	Protein		
FT	/note="Mature OCIF, claim 6"		
PN	MO9626217-A1.		
PD	29-AUG-1996.		
PF	20-FEB-1996: J00374.		
PR	20-FEB-1995: JP-054977.		
PA	21-JUL-1995: JP-207508.		
PS	(SNOW) SNOW BRAND MILK PROD CO LTD.		
PI	Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;		
PI	Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;		
DR	WPI: 96-402320/40.		
DR	N-PSDB: T36685.		
PT	DNA encoding osteoclastogenesis inhibitory factor protein - useful		
PT	for bone resorption control, esp. treatment of osteoporosis		
PS	Disclosure, Page 64-66, 183pp: Japanese.		
CC	This sequence represents the full length osteoclastogenesis inhibitory		
CC	factor (OCIF) of the invention. The OCIF has a molecular weight by		
CC	SDS-PAGE of 60 kD under reducing conditions and 120 kD under non-		
CC	reducing conditions. The protein is adsorbed onto cation-exchangers		
CC	or heparin and its activity is lowered after 10 mins at 70 deg.C or		
CC	30 mins at 56 deg.C, and is lost after 10 mins at 90 deg.C. OCIF is		
CC	useful in the control of bone resorption and therefore in the		
CC	treatment and prevention of disorders of bone resorption, e.g.		
CC	osteoporosis.		
CC	Sequence 401 AA:		
Query Match	100.0%:	Score 2861:	DB 20: Length 401:
Best Local Similarity	100.0%:	Prod. No. 1.20e-278:	
Matches	380:	Conservative 0:	Mismatches 0: Indels 0: Gaps 0:
Db	22	etfppkylhnyeetshqllcdkppgtylkhtctakwktvcapcpdhyydswhstdecl	81
Qy	22	ETFPFKYLYHNEETSHQLLCDKCPPGTYLKHCCTAKWKTVCAPCPDHYIYDSWHTSECL	81
Db	82	ycsprvckelgyvqkdecntrhnrvceckegryljejefclkhnsccppgfyavvgatperntv	141
Qy	82	YCSPRVKELGYVQKDECNTRHNRVCECKEGRYLJEIEFCLKHSRCPPGFGVAGAPERNTV	141
Db	142	ckrcpdpffsnetstskapcrhntcsvfgllltckgnatbhnicsgnsestqkcgldvlt	201
Qy	142	CKRPDGFSSNETSSKAPCRKHTNCSVFGLLLTQGNATHDNICSGNSESTQKCGIDVLT	201

Db	202	ceaeffracyvctkftpmisylvnhjgktnmaesvarikrbhsaggtqgllylwhgn	261
Oy	202	CEEAFFRAVPTKTPMNLVLYVNLPGTKVNAESVRIKROHSSQOTQTLKLMKHQN	261
Db	262	kdgdlvkklllddlcensvgrhlgphanaltfegirsimesjpkkvaaedektlkacp	321
Oy	262	KDQDVLVKIITDIDDLCENSVGRHIGHANLTFEGQRLSMESLPGKKVGAEDIEKTIKCKP	321
Db	322	sdqllklislvrlkngddtlkglmhakhskeyhfkvtcvqsljkkirfihstfmykly	381
Oy	322	SDQILKLLSLIRKNGDDTLKGLMHALKHSKTYHFPKTVQSLKTIREFLHSTFYKLY	381
Db	382	qklflemgpnvgsvkislcl 401	
Oy	382	QKLFLEMIGNVQSVKISCL 401	
RESULT 3			
ID	R99932	standard; Protein; 401 AA.	
AC	R99932		
DT	22-APR-1997	(first entry)	
DE	Mutated OCIF; OCIF-C20S.		
KW	Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption; osteoporosis.		
OS	Synthetic.		
FT	Key	Location/Qualifiers	
FT	Peptide	1..21	
FT	/note="Signal peptide"		
FT	Protein	22..401	
FT	/note="Mature OCIF-C20S"		
FT	Misc.difference	202	
FT	/label=C20S		
PN	W09626217-A1.		
PD	29-AUG-1996.		
PF	20-FEB-1996;	J00374.	
PR	20-FEB-1995;	JP-054977.	
PR	21-JUL-1995;	JP-207508.	
PA	(SNOW) SNOW BRAND MILK PROD CO LTD.		
PI	Goto M, Higashio K, Kobayashi F, Mochizuki S, Moriaga T;		
PI	Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;		
DR	WPI: 96-402320/40.		
DR	N-PSDB: T33162.		
PT	DNA encoding osteoclastogenesis inhibitory factor protein - useful		
PT	for bone resorption control, esp. treatment of osteoporosis		
PS	Claim 32; Page 96-98; 183pp; Japanese.		
CC	This sequence represents a mutated version of the full length		
CC	osteoclastogenesis inhibitory factor (OCIF) of the invention. This		
CC	sequence represents OCIF-C20S in which the 20th Cys residue in the		
CC	mature OCIF protein is substituted by Ser. The OCIF of the invention		
CC	has a molecular weight by SDS-PAGE of 60 kD under reducing conditions		
CC	and 120 kD under non-reducing conditions. The protein is adsorbed onto		
CC	cation-exchangers or heparin and its activity is lowered after 10 mins		
CC	at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90		
CC	deg.C. OCIF is useful in the control of bone resorption and therefore		
CC	in the treatment and prevention of disorders of bone resorption, e.g.		
CC	osteoporosis.		
CC	Sequence 401 AA;		
SO			
Query Match 99.5%; Score 2847; DB 20; Length 401;			
Best Local Similarity 99.7%; Pred.No. 3,39e-277;			
Matches 379; Conservative 0; Mismatches 1; Indels 0; Gaps 0;			
Db	22	etfppkylnhyeeeshqllcdkcpptyglylqhcncakxkvtccapcpdhyddswhtsdecl	81
Oy	22	ETFPKYLNHYDEESHQLLCDKCPPTGYLYQHCHCAKMKTVCACPDHYDDSWHTSDECL	81
Db	82	ycsppvckelqyvkagcurnthrvceckegryljetefclkhnsccppgfyvgaqtpentv	141
Oy	82	YCSPPVCKELQYVKAGCURNTHRVCECKEGRLJETEFCLKHNSCCPPGFGVGAQATPEENTV	141
Db	142	ckicpdpffinsesskpcrkhncsvfgllltqgnatdnalcsgnsesctqcgldavl	201

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OY 142 CKRCPDGFSSNETSSKAPCRKHTNCSVFGLLTQKGNATHDNICSGNSESTOKCIDVTL 201
Db 202 seeaffirfavptkftfpmwlsylvdnlpqtkynaesverikrqhssgeqctfgllkwxhqn 261
OY 202 CEAEFFRFAVPKFTFPMWLSVLDNLPQTKYNAESVERIKRQHSQEOETFOLLLKMKHQN 261
Db 262 kdgdlvkkliididlcensvgrhghantfeglrtslmeslpgkxvgaedlektikackp 321
OY 262 KDODIVKRIIDIDLCENSVGRHGHANTFEOQLRSLMESLPGRKVGAEDEKTIKACKP 321
Db 322 sdqllkllslwrkngdgtlkgjlmhalbkstyhfpkvtvgsllkktirflhsftmryly 381
OY 322 SDQILKLSTWRKNGDDTLKGLMHALKHSTYHFPKTVQSLKKTIRFLHSFTMRYLY 381
Db 382 qkllflemingvgsvkiscl 401
OY 382 OKLFLEMIGNOVQSVKISCL 401

JLT 4
R99931 standard: Protein; 401 AA.
AC R99931;
DE 22-APR-1997 (first entry)
KW Osteoclastogenesis inhibitory factor: OCIF; heparin; bone resorption;
OS Osteoporosis.
FH Key Location/Qualifiers
FT Peptide 1..21
FT /note- "Signal peptide"
FT /protein 22..401
FT /note- "Mature OCIF-C19S"
FT Misc.difference 195
FT /label- C19S
PN MO9626217-A1.
PF 29-AUG-1996: J00374.
PF 20-FEB-1996: JP-054977.
PR 21-JUL-1995: JP-207508.
PA (SNOW ) SNOW BRAND MILK PROD CO LTD.
PI Goto M, Higashi K, Kobayashi F, Mochizuki S, Morinaga T;
PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
PI WPI: 96-402320/40.
DR N-PSDB: T33161.
PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
PT for bone resorption control, esp. treatment of osteoporosis
PS Claim 29: Page 94-96: 183pp: Japanese.
CC This sequence represents a mutated version of the full length
CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This
CC sequence represents OCIF-C19S in which the 19th Cys residue in the
CC mature OCIF protein is substituted by Ser. The OCIF of the invention
CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions.
CC and 120 kD under non-reducing conditions. The protein is adsorbed onto
CC cation-exchangers or heparin and its activity is lowered after 10 mins
CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
CC deg.C. OCIF is useful in the control of bone resorption and therefore
CC in the treatment and prevention of disorders of bone resorption, e.g.
CC osteoporosis.
SQ Sequence 401 AA;

Query Match 99.5%; Score 2847; DB 20; Length 401;
Best Local Similarity 99.7%; Pred. No. 3.39e-277;
Matches 379; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
Db 22 etfpkylhydeeshqllcdkcpptgylkqhctakwktvcapcdhytidswhstdecl 81
OY 22 ETFPKYLHYDEESHQLLCDKCPPTGYLKQHCYAKWKTVCAPCPDHYTIDSWHTSDCL 81
Db 82 ycsprckelqyvkgecsthrnvceckegrylelefcldkhsccpfgfvgvagstperntv 141
OY 82 YCSPRCKELQYVKGCSTHNRNVCECKEGRYLELEFCLKHSRCPFGFVGVAQSTPERNTV 141
Db 142 ckrcpdgffsnetsskacprkhtncsvfgllltqkgnathdnicsgnsesctqsgldvltl 201

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OY 142 CKRCPDGFSSNETSSKAPCRKHTNCSVFGLLTQKGNATHDNICSGNSESTOKCIDVTL 201
Db 202 seeaffirfavptkftfpmwlsylvdnlpqtkynaesverikrqhssgeqctfgllkwxhqn 261
OY 202 CEAEFFRFAVPKFTFPMWLSVLDNLPQTKYNAESVERIKRQHSQEOETFOLLLKMKHQN 261
Db 262 kdgdlvkkliididlcensvgrhghantfeglrtslmeslpgkxvgaedlektikackp 321
OY 262 KDODIVKRIIDIDLCENSVGRHGHANTFEOQLRSLMESLPGRKVGAEDEKTIKACKP 321
Db 322 sdqllkllslwrkngdgtlkgjlmhalbkstyhfpkvtvgsllkktirflhsftmryly 381
OY 322 SDQILKLSTWRKNGDDTLKGLMHALKHSTYHFPKTVQSLKKTIRFLHSFTMRYLY 381
Db 382 qkllflemingvgsvkiscl 401
OY 382 OKLFLEMIGNOVQSVKISCL 401

RESULT 5
ID R99931 standard: Protein; 401 AA.
AC R99931;
DE 22-APR-1997 (first entry)
KW Osteoclastogenesis inhibitory factor: OCIF; heparin; bone resorption;
OS Osteoporosis.
FH Key Location/Qualifiers
FT Peptide 1..21
FT /note- "Signal peptide"
FT /protein 22..401
FT /note- "Mature OCIF-C21S"
FT Misc.difference 277
FT /label- C21S
PN MO9626217-A1.
PF 29-AUG-1996: J00374.
PF 20-FEB-1996: JP-054977.
PR 21-JUL-1995: JP-207508.
PA (SNOW ) SNOW BRAND MILK PROD CO LTD.
PI Goto M, Higashi K, Kobayashi F, Mochizuki S, Morinaga T;
PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
PI WPI: 96-402320/40.
DR N-PSDB: T33163.
PT DNA encoding osteoclastogenesis inhibitory factor protein - useful
PT for bone resorption control, esp. treatment of osteoporosis
PS Claim 35: Page 98-100: 183pp: Japanese.
CC This sequence represents a mutated version of the full length
CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This
CC sequence represents OCIF-C21S in which the 21st Cys residue in the
CC mature OCIF protein is substituted by Ser. The OCIF of the invention
CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions
CC and 120 kD under non-reducing conditions. The protein is adsorbed onto
CC cation-exchangers or heparin and its activity is lowered after 10 mins
CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
CC deg.C. OCIF is useful in the control of bone resorption and therefore
CC in the treatment and prevention of disorders of bone resorption, e.g.
CC osteoporosis.
SQ Sequence 401 AA;

Query Match 99.4%; Score 2843; DB 20; Length 401;
Best Local Similarity 99.2%; Pred. No. 8.80e-277;
Matches 377; Conservative 2; Mismatches 1; Indels 0; Gaps 0;
Db 22 etfpkylhydeeshqllcdkcpptgylkqhctakwktvcapcdhytidswhstdecl 81
OY 22 ETFPKYLHYDEESHQLLCDKCPPTGYLKQHCYAKWKTVCAPCPDHYTIDSWHTSDCL 81
Db 82 ycsprckelqyvkgecsthrnvceckegrylelefcldkhsccpfgfvgvagstperntv 141
OY 82 YCSPRCKELQYVKGCSTHNRNVCECKEGRYLELEFCLKHSRCPFGFVGVAQSTPERNTV 141

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Db      142  ckrpcpgffsnetskpcrkhtncsvfgllltqkgnathdnicsgnseetqcgldvtl 201
      |||||||
QY      142  CRKCPDGFSENETSSKAPCRKHTNCSVFGLLLTQKGNATHDNCSGNSESTQCGIDVTL 201
Db      202  ceeaffrfavpkkfcpnwslvvdnlpgtkvnaesverlkrhsgseqetfgllklwkhqn 261
      |||||||
QY      202  CEEAFFRFVAPKFFTPNMLSVLVNDLPGTKVNAESVERIKRHSSEQEOTFOLKLKMKHQN 261
Db      262  kqgdlyvkkllqddlceensvqrhlgnahtfeglrslmeslpgkxvgaedlektlckp 321
      |||||||
QY      262  KQGDLYVKKLIQDDIDCENSVQRHIGHANLTFEOLRSLMESLPKXVGAEDIKTIKACP 321
Db      322  sdgllkllslwrkngdgtklglmhalkhsctyhpktvsglkktrfllhftmwykly 381
      |||||||
QY      322  SDQILKLLSLMKRKNDDDTLKGMLHALKHSKTYHPKVTIOSLKKTIIFLHSTMYKLY 381
Db      382  qklflemlyngvqsvklscl 401
      |||||||
QY      382  QKLFLEMIGNOVQSVKISCL 401

      .JLT
ID      R99942 standard; Protein: 399 AA.
AC      R99942;
DE      23-APR-1997 (first entry)
DE      Mutated OCIF, OCIF-CL.
KW      Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
      osteoporosis.
OS      Synthetic.
FH      Key
FT      Peptide 1..21
FT      /note- "Signal peptide"
FT      Protein 22..399
FT      /note- "Mature OCIF-CL"
      WO9626217-A1.
PN      29-AUG-1996.
PF      20-FEB-1996: J00374.
PR      20-FEB-1995: JP-054977.
PR      21-JUL-1995: JP-207508.
PA      (SNOW) SNOW BRAND MILK PROD CO LTD.
PA      Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
PI      Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
PI      WPI: 96-402320/40.
DR      N-PSDB: T33172.
DR      DNA encoding osteoclastogenesis inhibitory factor protein - useful
      for bone resorption control, esp. treatment of osteoporosis
      PS      Claim 62; Page 117-119; 183pp; Japanese.
      This sequence represents a mutated version of the full length
      osteoclastogenesis inhibitory factor (OCIF) of the invention. This
      sequence represents OCIF-CL in which amino acids 379-380 of the
      mature OCIF protein are deleted. The OCIF of the invention
      has a molecular weight by SDS-PAGE of 60 kD under reducing conditions
      and 120 kD under non-reducing conditions. The protein is adsorbed onto
      cation-exchangers or heparin and its activity is lowered after 10 mins
      at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
      deg.C. OCIF is useful in the control of bone resorption and therefore
      in the treatment and prevention of disorders of bone resorption, e.g.
      osteoporosis.
      CC      Sequence 399 AA:
      SO
Query Match 99.3%; Score 2840; DB 20; Length 399;
Best Local Similarity 100.0%; Pred. NO.1.80e-276;
Matches 378; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
Db      22  etfppkylhydeetsqhlldckcpptylkqhctakwktvcapcpdhytldswhtsdecl 81
      |||||||
QY      22  ETRPPKYLHYDETSQHLCDKCPPTYLKQHCTAKWKTVCAPCPDHYTSDSWHTSDECL 81
Db      82  ycsprvckelqyvkgxgcenrthnrvcckegrylelefcikhsccppgfyvvgagtpervtv 141
      |||||||
QY      82  YCSPRVCKELQYVKGXGCENRTHNRVCKEGRYLEIEFCIKHSRSCPPGFGVVAQATPERNTV 141
Db      142  ckrpcpgffsnetskpcrkhtncsvfgllltqkgnathdnicsgnseetqcgldvtl 201

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QY      142  ckrpcpgffsnetskpcrkhtncsvfgllltqkgnathdnicsgnseetqcgldvtl 201
      |||||||
Db      202  ceeaffrfavpkkfcpnwslvvdnlpgtkvnaesverlkrhsgseqetfgllklwkhqn 261
      |||||||
QY      202  CEEAFFRFVAPKFFTPNMLSVLVNDLPGTKVNAESVERIKRHSSEQEOTFOLKLKMKHQN 261
Db      262  kqgdlyvkkllqddlceensvqrhlgnahtfeglrslmeslpgkxvgaedlektlckp 321
      |||||||
QY      262  KQGDLYVKKLIQDDIDCENSVQRHIGHANLTFEOLRSLMESLPKXVGAEDIKTIKACP 321
Db      322  sdgllkllslwrkngdgtklglmhalkhsctyhpktvsglkktrfllhftmwykly 381
      |||||||
QY      322  SDQILKLLSLMKRKNDDDTLKGMLHALKHSKTYHPKVTIOSLKKTIIFLHSTMYKLY 381
Db      382  qklflemlyngvqsvkls 399
      |||||||
QY      382  QKLFLEMIGNOVQSVKIS 399

RESULT 7
ID      R99934 standard; Protein: 401 AA.
AC      R99934;
DE      22-APR-1997 (first entry)
DE      Mutated OCIF, OCIF-C22S.
KW      Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
      osteoporosis.
OS      Synthetic.
FH      Key
FT      Peptide 1..21
FT      /note- "Signal peptide"
FT      Protein 22..401
FT      /note- "Mature OCIF-C22S"
      MISC_difference 277
FT      /label- C22S
      WO9626217-A1.
PN      29-AUG-1996.
PF      20-FEB-1996: J00374.
PR      20-FEB-1995: JP-054977.
PR      21-JUL-1995: JP-207508.
PA      (SNOW) SNOW BRAND MILK PROD CO LTD.
PA      Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;
PI      Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;
PI      WPI: 96-402320/40.
DR      N-PSDB: T33164.
DR      DNA encoding osteoclastogenesis inhibitory factor protein - useful
      for bone resorption control, esp. treatment of osteoporosis
      PS      Claim 38; Page 100-102; 183pp; Japanese.
      This sequence represents a mutated version of the full length
      osteoclastogenesis inhibitory factor (OCIF) of the invention. This
      sequence represents OCIF-C22S in which the 22nd Cys residue in the
      mature OCIF protein is substituted by ser. The OCIF of the invention
      has a molecular weight by SDS-PAGE of 60 kD under reducing conditions
      and 120 kD under non-reducing conditions. The protein is adsorbed onto
      cation-exchangers or heparin and its activity is lowered after 10 mins
      at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
      deg.C. OCIF is useful in the control of bone resorption and therefore
      in the treatment and prevention of disorders of bone resorption, e.g.
      osteoporosis.
      CC      Sequence 401 AA:
      SO
Query Match 99.3%; Score 2841; DB 20; Length 401;
Best Local Similarity 99.5%; Pred. NO.1.42e-276;
Matches 378; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
Db      22  etfppkylhydeetsqhlldckcpptylkqhctakwktvcapcpdhytldswhtsdecl 81
      |||||||
QY      22  ETRPPKYLHYDETSQHLCDKCPPTYLKQHCTAKWKTVCAPCPDHYTSDSWHTSDECL 81
Db      82  ycsprvckelqyvkgxgcenrthnrvcckegrylelefcikhsccppgfyvvgagtpervtv 141
      |||||||
QY      82  YCSPRVCKELQYVKGXGCENRTHNRVCKEGRYLEIEFCIKHSRSCPPGFGVVAQATPERNTV 141

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Db      82  ycsrvckelgyvkgecntrhnrvceckegryylelefclkhnrscppgfgvvagagtpernv 141
      |||
      82  YCSPVCKELOLYVQECNRTNHRVCECKEGRYLLEIFCLKHSRCPGFGVVQAGTPERNTV 141
Qy      142  ckrpcpdgffsnetsskacprckhncsvfgllltqkgnathdnicsnsestqcgldvlt 201
      |||
      142  CKRCPDGFFSNETSSKAPCRKHNCVSFGLLLTQKGATHDNCSCNSESTQCGLDVLT 201
Qy      202  cceaffrfavptkftpnwlsylvdnlpqtkvnaesverikrghssgeqtqllkvlkhqn 261
      |||
      202  CCEAFFRFVPTKFTPNWLSVLDNLPQTKVNAESVERIKRQHSOEGTQLLKVLKHN 261
Qy      262  kqgdllkklldgldleensvgrhghnltfegllslneslpqtkvgaediektkacp 321
      |||
      262  KQGDLLKKLIDGLDLENSVGRHGHNLTFEGLLSLNESLPQTKVGAEDIEKTKACP 321
Qy      322  scdqlklslslwrkngdgtlklglmalhsktyhfpkvtqsglktirflhsftmykly 381
      |||
      322  SCDQLKLSLSLWRKNGDGTCLKGLMALHKSKEYHFPKVTQSLKTIIRFLHSFTMYKLY 381
Qy      382  qkllflemignlv 393
      |||
      382  QKLLFLEMIGNLV 393
Qy      382  OKLFLEMIGNOV 393

RESULT 10
ID      R99936 standard; Protein: 360 AA.
AC      R99936;
DT      23-APR-1997 (first entry)
DE      Mutated OCIF, OCIF-DCR1.
KW      Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
OS      Synthetic.
FH      Key Location/Qualifiers
FT      peptide 1..21
FT      /note= "Signal peptide"
FT      Protein 22..360
FT      /note= "Mature OCIF-DCR1"
FT      Misc_difference 22..23
FT      /note= "Position of deletion, delta 2-42"
PD      29-AUG-1996; J00374.
PE      20-FEB-1996; JP-054977.
PR      20-FEB-1995; JP-054977.
PI      21-JUL-1995; JP-207508.
PA      (SNOW) SNOW BRAND MILK PROD CO LTD.
PI      Goto M., Higashio K., Kobayashi F., Mochizuki S., Morinaga T.,
      Nakagawa N., Shima N., Tsuda E., Ueda M., Yano K., Yasuda H.;
      MPI: 96-402320/40.
N-PSDB: J33166.
PI      DNA encoding osteoclastogenesis inhibitory factor protein - useful
      for bone resorption control, esp. treatment of osteoporosis
PS      Claim 44; Page 105-107; 183pp; Japanese.
CC      This sequence represents a mutated version of the full length
      osteoclastogenesis inhibitory factor (OCIF) of the invention. This
      sequence represents OCIF-DCR1 in which amino acids 2-42 of the
      mature OCIF protein are deleted. The OCIF of the invention
      has a molecular weight by SDS-PAGE of 60 kD under reducing conditions
      and 120 kD under non-reducing conditions. The protein is adsorbed onto
      cation-exchangers or heparin and its activity is lowered after 10 mins
      at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
      deg.C. OCIF is useful in the control of bone resorption and therefore
      in the treatment and prevention of disorders of bone resorption, e.g.
      osteoporosis.
SQ      Sequence 360 AA:

Query Match      88.7%; Score 2539; DB 20; Length 360;
Best Local Similarity 98.3%; Pred. No. 2,64e-245;
Matches 341; Conservative 1; Mismatches 4; Indels 1; Gaps 1;

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Db      74  lefclkhnrscppgfgvvagagtpernvtvckrcpdgffsnetsskacprckhncsvfglllt 133
      |||
      115  IEFCLKHSRCPGFGVVQAGTPERNTVCKRCPDGFFSNETSSKAPCRKHNCVSFGLLLT 174
Qy      134  qkgnathdnicsnsestqcgldvltceaffrfavptkftpnwlsylvdnlpqtkvna 193
      |||
      175  QKGNATHDNCSCNSESTQCGLDVLTCEAFFRFVPTKFTPNWLSVLDNLPQTKVNA 234
Qy      194  esverikrghssgeqtqllkvlkhqnkxgdvklldgldleensvgrhghnltfeg 253
      |||
      235  ESVERIKRQHSOEGTQLLKVLKHNKXGDVCLKLIDLENSVGRHGHNLTFEQ 294
Qy      254  lrslneslpqtkvgaediektkacpsdqlklslslwrkngdgtlklglmalhskt 313
      |||
      295  LRSLNESLPQTKVGAEDIEKTKACPSDQLKLSLSLWRKNGDGTCLKGLMALHKSKT 354
Qy      314  yhfprtvqslkktirflhsftmyklykllflemignvqsvkxsl 360
      |||
      355  YHFPRTVQSLKKTIRFLHSFTMYKLYKLLFLEMIGNOVSVKXISCL 401
Qy

RESULT 11
ID      R99943 standard; Protein: 351 AA.
AC      R99943;
DT      23-APR-1997 (first entry)
DE      Mutated OCIF, OCIF-CC.
KW      Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;
OS      Synthetic.
FH      Key Location/Qualifiers
FT      peptide 1..21
FT      /note= "Signal peptide"
FT      Protein 22..351
FT      /note= "Mature OCIF-CC"
PD      29-AUG-1996; J00374.
PE      20-FEB-1996; JP-054977.
PR      20-FEB-1995; JP-054977.
PI      21-JUL-1995; JP-207508.
PA      (SNOW) SNOW BRAND MILK PROD CO LTD.
PI      Goto M., Higashio K., Kobayashi F., Mochizuki S., Morinaga T.,
      Nakagawa N., Shima N., Tsuda E., Ueda M., Yano K., Yasuda H.;
      MPI: 96-402320/40.
N-PSDB: J33173.
PI      DNA encoding osteoclastogenesis inhibitory factor protein - useful
      for bone resorption control, esp. treatment of osteoporosis
PS      Claim 65; Page 119-121; 183pp; Japanese.
CC      This sequence represents a mutated version of the full length
      osteoclastogenesis inhibitory factor (OCIF) of the invention. This
      sequence represents OCIF-CC in which amino acids 331-380 of the
      mature OCIF protein are deleted. The OCIF of the invention
      has a molecular weight by SDS-PAGE of 60 kD under reducing conditions
      and 120 kD under non-reducing conditions. The protein is adsorbed onto
      cation-exchangers or heparin and its activity is lowered after 10 mins
      at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90
      deg.C. OCIF is useful in the control of bone resorption and therefore
      in the treatment and prevention of disorders of bone resorption, e.g.
      osteoporosis.
SQ      Sequence 351 AA:

Query Match      86.7%; Score 2481; DB 20; Length 351;
Best Local Similarity 100.0%; Pred. No. 2,64e-239;
Matches 330; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

D	b	142	ckrcpdgffinetssskacpcrkhnscvfgllltqkgnaathadncsnsestcgldvtl	201
O	y	142	ckrcpdpdffenessskapcrkhtnscvfegllltqkgnaathadncsnsestcgldvtl	201
D	b	202	ceeaafffavapxctfipnwlsylvdnlpgrkkvaesvertkrqnsgcgcftglklwbkn	261
O	y	202	ceebafrrfnavptftrfnwlsylvdnlpgkrkvaesvertkrqhssoeotfolklmkhcn	261
D	b	262	kddgdlyvkllqdldlcensvqrhignahnltfedjrlsmespbgkkygaadtcktlackp	321
O	y	262	kdddiyvkrtiodldlcensvqrhigahnlfeodfrslmestspgkkygaadiertikackp	321
D	b	322	sddqlklislswirkngdqdtlkglmalkh	351
O	y	322	sdqlklslmwirkngdootlkglmalkh	351
 RESULT 12 P9949 standard; Protein: 321 AA.				
			R89949;	
D	e	23-APR-1997 (first entry)		
K	M	Mutated OCIF, OCIF-CSpH.		
K	M	Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;		
S	O	osteoporosis.		
O	S	Synthetic.		
F	H	Key	Location/Qualifiers	
F	T	Peptide	1..21	
F	T	/note= "Signal peptide"	22..321	
F	T	Protein		
P	N	/note= "Mature OCIF-CSpH"		
		W09626217-A1.		
P	D	28-FEB-1996.		
P	F	20-FEB-1996; J00374.		
P	R	20-FEB-1995; JP-054977.		
P	R	21-JUL-1995; JP-207508.		
P	A	(SNOW) SNOW BRAND MILK PROD CO LTD.		
P	I	Goto M., Higashi K., Kobayashi F., Mochizuki S., Morinaga T.;		
P	I	Nakagawa N., Shima N., Tsuda E., Ueda M., Yano K., Yasuda H.;		
D	R	WPI; 96-403230/40.		
D	R	N-PSDB; T33179.		
P	T	DNA encoding osteoclastogenesis inhibitory factor protein - useful		
P	T	for bone resorption control, esp. treatment of osteoporosis		
P	S	Claim 83; Page 128-129; 183pp; Japanese.		
C	C	This sequence represents a mutated version of the full length		
C	C	osteoclastogenesis inhibitory factor (OCIF) of the invention. This		
C	C	sequence represents OCIF-CSpH in which amino acids 298-380 of the mature		
C	C	OCIF protein are replaced by Ser-Leu-Asp. These changes are caused by		
C	C	the introduction of a restriction site in the DNA encoding this protein.		
C	C	The OCIF of the invention has a molecular weight by SDS-PAGE of 60 kD		
C	C	under reducing conditions and 120 kD under non-reducing conditions. The		
C	C	protein is adsorbed onto cation-exchangers or heparin and its activity is		
C	C	lowered after 10 mins at 70 deg.C or 30 mins at 56 deg.C, and is lost		
C	C	after 10 mins at 90 deg.C. OCIF is useful in the control of bone		
C	C	resorption and therefore in the treatment and prevention of disorders		
C	C	of bone resorption, e.g. osteoporosis.		
S	O	Sequence 321 AA:		
 Query Match 78.0%; Score 2231; DB 20; Length 321; Best Local Similarity 100.0%; Pred. No. 1,84e-213; Matches 297; Conservative 0; Mismatches 0; Indels 0; Gaps 0;				
D	b	22	etfpfkylhydeeshblldckcpptylkqhatakwktvcacppdhxyttdshwsdecl	81
O	y	22	etfepfkylrhdeetshollcdckcpptylkqhortaknktycacbpohyyttidswnhtDECL	81
D	b	82	ycsbvckelgyvqxqecntrharyceeksegrylelefclkhscppsfgyvgaaqtperntv	141
O	y	82	ycsvckelgyvkoecnrtnhrvceckegryleierfcLKHRSCTPFGVGVQAOATERNTV	141
D	b	142	ckrcpdgffinetssskacpcrkhnscvfgllltqkgnaathadncsnsestcgldvtl	201
O	y	142	ckrcpdpdffenessskapcrkhtnscvfegllltqkgnaathadncsnsestcgldvtl	201

Dd	202	ceeaftiaavptkltfpmvlslvlnhlpqtkxaeveirikrghssgqctfqlliklwhqn	261
Oy	202	CEEAFFRAAVPTKLTFLPMVLVLVNLNGTKNAEVEIRIKRHOSSQOTFOLLKLWKHQN	261
Dd	262	kdgdtvkklldididicnsvgrhghnltfeqrslsmesipgkkvgaedlektika	318
Oy	262	KDQDVKKLIDIDICNSVGRHGHNLFTEQRSLMESIPGKKGVAEDLEKTIKA	318
<b>RESULT 13</b>			
ID	R99937	standard; Protein; 359 AA.	
AC	R99937		
DT	23-APR-1997	(first entry)	
KW	Mutated OCIF; OCIF-DCR2.		
DV	Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;		
OS	osteoporosis.		
KS	Synthetic.		
FH	key	Location/Qualifiers	
FT	peptide	1..21	
FT	/note="Signal peptide"		
FT	protein	22..359	
FT	/note="Mature OCIF-DCR2"		
FT	Misc.difference	63..64	
FT	/note="Position of deletion, delta 43-84"		
PN	WO9626217-A1.		
PD	29-AUG-1996.		
PF	20-FEB-1996; J00374.		
PR	20-FEB-1995; JP-054977.		
PR	21-JUL-1995; JP-207508		
PA	(SNOW ) SNOW BRAND MILK PROD CO LTD, Mochitsuki S, Morinaga T;		
P1	Goto M, Higashio K, Kobayashi F, Yano K,		
P1	Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;		
DR	WPI: 96-402330/40.		
DR	P-RSDS: t33167.		
PT	DNA encoding osteoclastogenesis inhibitory factor protein - useful		
PT	for bone resorption control, esp. treatment of osteoporosis		
PS	Claim 47; Page 107-109; 183pp; Japanese.		
CC	This sequence represents a mutated version of the full length		
CC	osteoclastogenesis inhibitory factor (OCIF) of the invention. This		
CC	sequence represents OCIF-DCR2 in which amino acids 43-84 of the		
CC	mature OCIF protein are deleted. The OCIF of the invention		
CC	has a molecular weight by SDS-PAGE of 60 kD under reducing conditions		
CC	and 120 kD under non-reducing conditions. The protein is adsorbed onto		
CC	cation-exchangers or heparin and its activity is lowered after 10 mins		
CC	at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90		
CC	deg.C. OCIF is useful in the control of bone resorption and therefore		
CC	in the treatment and prevention of disorders of bone resorption, e.g.		
CC	osteoporosis.		
SC	Sequence 359 AA;		
Query Match 77.5%; Score 2218; DB 20; Length 359;			
Best Local Similarity 89.4%; Pred.No.4.0e-212;			
Matches 312; Conservative 5; Mismatches 26; Indels 6; Gaps 6			
Dd	15	sikwtfg-etfpkylyhde-etshq-llcdk-gpytylkqhctakwtkcaecsegry	70
Oy	55	TAKMTTVCARPDNH-YIDSWNITDECLCYSPVKELDYVQECENRTNHNRC-ECKSGRY	112
Dd	71	lelefclhzscpgpfgyvgvqgcrperntvtckrcpdgffsmetskapocrkhntcsvgll	130
Oy	113	LEIEPCLNHRSCPGFGFYVGVOGTETERNVTCKRCPCDFGFNSSTSKAPCRKHNTCSVFGLL	172
Dd	131	ltgkpnahdhilcgnssetskgidvllceaffrauprkffrnmlsvlvndlpqtkv	190
Oy	173	LTKQKNAAHDNICSNSSTQKCGIDVTLCSEAFRRFAVPRTKTPMLSVLVNDLPQTKV	232
Dd	191	naevetrikzhssgeqffgiylkiwhbnkqdvlvklilgdidicnsvgrhlshantlc	250
Oy	233	NAESVERIKRHSSGEQFFGIYLIKWHBNKQDVLVKKILGDIDICNSVGRHSHANTLC	292
Dd	231	eqrlsmesipgkkvgaedlektikaekpsdqllkllslwrknngddctlglnhalxhs	310
Oy	293	EQLRLSMESIPGKKVGADIEKTIKACPSSOILKLLSLWRKNGDDCTLGKLNHALXHS	352

Db 311 ktyhfpkvtcgsllkktirfshsfmvyklyhnlflfemlgnvgvsklsc1 359  
 |||||  
 QY 353 KTYHFPKVTQSLKKTIRFLSHFTMYKLYOKLFLEMIGNOVSKISCL 401

RESULT 14  
 ID R99938 standard; Protein: 360 AA.  
 AC R99938;

DT 23-APR-1997 (first entry)  
 DE Mutated OCIF, OCIF-DCR3.  
 KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;  
 KM osteoporosis.  
 OS Synthetic.

FT Key Location/Qualifiers  
 FT Peptide 1..21  
 FT /note= "Signal peptide"  
 FT Protein 22..360  
 FT /note= "Mature OCIF-DCR3"  
 FT Misc\_difference 105..106  
 FT /note= "Position of deletion, delta 85-122"  
 FT WO9626217-A1.

PD 29-AUG-1996.  
 PF 20-FEB-1996; J00374.  
 PR 20-FEB-1995; JP-054977.  
 PR 21-JUL-1995; JP-207508.  
 PA (SNOW) SNOW BRAND MILK PROD CO LTD.  
 PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;  
 PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;  
 PI WPI: 96-402320/40.  
 DR N-PSDB: T33168.

PT DNA encoding osteoclastogenesis inhibitory factor protein - useful  
 for bone resorption control, esp. treatment of osteoporosis  
 PS Claim 50; Page 109-111; 183pp; Japanese.  
 CC This sequence represents a mutated version of the full length  
 CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This  
 CC sequence represents OCIF-DCR3 in which amino acids 85-122 of the  
 CC mature OCIF protein are deleted. The OCIF of the invention  
 CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions  
 CC and 120 kD under non-reducing conditions. The protein is adsorbed onto  
 CC cation-exchangers or heparin and its activity is lowered after 10 mins  
 CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90  
 CC deg.C. OCIF is useful in the control of bone resorption and therefore  
 CC in the treatment and prevention of disorders of bone resorption, e.g.  
 CC osteoporosis.  
 SQ Sequence 360 AA;

Query Match 74.1%; Score 2119; DB 20; Length 360;  
 st Local Similarity 89.9%; Pred. No. 6,78e-202;  
 itches 339; Conservative 0; Mismatches 0; Indels 38; Gaps 1;

Db 22 etfppkylhydeetsqllcdkcpptylkqhctakwktvcapcdhytswhtsdecl 81  
 |||||  
 QY 22 ETFPKYLHYDEETSHQLCDKCPPTYLKQHCSTAKWKTVCAPCDHYTSDWHTSDECL 81  
 |||||  
 Db 82 ycsppvckelqyvkgecntthrvceckegryleiefclkhrcscppgfvvvoagtpberntv 105  
 |||||  
 QY 82 YCSPPVCKELQYVKGECONTHRVCECKEGRYLEIEFCLKHRCSCPPGFGVVVOAGTPBERNTV 141  
 |||||  
 Db 106 --rcpdpffnesnsakpcrkhtncsvfglllctqknathnicsgnsesctqcgldvtl 163  
 |||||  
 QY 142 CRKCPDGFNSNTSSKAPCRKHTNCSVFGLLLTQKGNATHNICSNSSECTQCGLDVTL 201  
 |||||  
 Db 164 ceeaffrfavpklfcpnwslvvdnlpgtkvnaesverlkrghsgeqctfgllklwkhpn 223  
 |||||  
 QY 202 CEEAFRFRAVPTKFTPNMWSLVVDNLPGTKVNAESVERIKRGHSSQEDTFOLKMKKHQN 261  
 |||||  
 Db 224 kqgdvlvklkigdlidcensvqrhishanltfeglrslmeslpgkkyvgaedlektlkaakp 283  
 |||||  
 QY 262 KDQDVKIRTIQDIDLCENSVOHRIGHANLTFEOLRSLMESLPGKKYVGAEDIEKTIKAKP 321  
 |||||  
 Db 284 sdqllkllslwrkngdcdtlkglmhalxkskyhfpkvtcgsllkktirfshsfmvykly 343  
 |||||

QY 322 SDQILKLSLMRIKNGDQDTLGLMHALKHSKTYHFPKVTQSLKKTIRFLSHFTMYKLY 381  
 |||||  
 Db 344 qkllflemingvqsvkl 360  
 |||||  
 QY 382 QKLFLEMIGNOVSVK1 398

RESULT 15  
 ID R99939 standard; Protein: 359 AA.  
 AC R99939;

DT 23-APR-1997 (first entry)  
 DE Mutated OCIF, OCIF-DCR4.  
 KW Osteoclastogenesis inhibitory factor; OCIF; heparin; bone resorption;  
 KM osteoporosis.  
 OS Synthetic.

FT Key Location/Qualifiers  
 FT Peptide 1..21  
 FT /note= "Signal peptide"  
 FT Protein 22..359  
 FT /note= "Mature OCIF-DCR4"  
 FT Misc\_difference 143..144  
 FT /note= "Position of deletion, delta 123-164"  
 FT WO9626217-A1.

PD 29-AUG-1996.  
 PF 20-FEB-1996; J00374.  
 PR 20-FEB-1995; JP-054977.  
 PR 21-JUL-1995; JP-207508.  
 PA (SNOW) SNOW BRAND MILK PROD CO LTD.  
 PI Goto M, Higashio K, Kobayashi F, Mochizuki S, Morinaga T;  
 PI Nakagawa N, Shima N, Tsuda E, Ueda M, Yano K, Yasuda H;  
 PI WPI: 96-402320/40.  
 DR N-PSDB: T33169.

PT DNA encoding osteoclastogenesis inhibitory factor protein - useful  
 for bone resorption control, esp. treatment of osteoporosis  
 PS Claim 53; Page 111-113; 183pp; Japanese.  
 CC This sequence represents a mutated version of the full length  
 CC osteoclastogenesis inhibitory factor (OCIF) of the invention. This  
 CC sequence represents OCIF-DCR4 in which amino acids 123-164 of the  
 CC mature OCIF protein are deleted. The OCIF of the invention  
 CC has a molecular weight by SDS-PAGE of 60 kD under reducing conditions  
 CC and 120 kD under non-reducing conditions. The protein is adsorbed onto  
 CC cation-exchangers or heparin and its activity is lowered after 10 mins  
 CC at 70 deg.C or 30 mins at 56 deg.C, and is lost after 10 mins at 90  
 CC deg.C. OCIF is useful in the control of bone resorption and therefore  
 CC in the treatment and prevention of disorders of bone resorption, e.g.  
 CC osteoporosis.  
 SQ Sequence 359 AA;

Query Match 72.7%; Score 2079; DB 20; Length 359;  
 st Local Similarity 88.7%; Pred. No. 9,12e-198;  
 Matches 337; Conservative 0; Mismatches 1; Indels 42; Gaps 1;

Db 22 etfppkylhydeetsqllcdkcpptylkqhctakwktvcapcdhytswhtsdecl 81  
 |||||  
 QY 22 ETFPKYLHYDEETSHQLCDKCPPTYLKQHCSTAKWKTVCAPCDHYTSDWHTSDECL 81  
 |||||  
 Db 82 ycsppvckelqyvkgecntthrvceckegryleiefclkhrcscppgfvvvoagtpberntv 141  
 |||||  
 QY 82 YCSPPVCKELQYVKGECONTHRVCECKEGRYLEIEFCLKHRCSCPPGFGVVVOAGTPBERNTV 141  
 |||||  
 Db 142 ck-----sgnsesctqcgldvtl 159  
 ||  
 QY 142 CRKCPDGFNSNTSSKAPCRKHTNCSVFGLLLTQKGNATHNICSNSSECTQCGLDVTL 201  
 |||||  
 Db 160 ceeaffrfavpklfcpnwslvvdnlpgtkvnaesverlkrghsgeqctfgllklwkhpn 219  
 |||||  
 QY 202 CEEAFRFRAVPTKFTPNMWSLVVDNLPGTKVNAESVERIKRGHSSQEDTFOLKMKKHQN 261  
 |||||  
 Db 220 kqgdvlvklkigdlidcensvqrhishanltfeglrslmeslpgkkyvgaedlektlkaakp 279  
 |||||  
 QY 262 KDQDVKIRTIQDIDLCENSVOHRIGHANLTFEOLRSLMESLPGKKYVGAEDIEKTIKAKP 321  
 |||||  
 Db 280 sdqllkllslwrkngdcdtlkglmhalxkskyhfpkvtcgsllkktirfshsfmvykly 339  
 |||||



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QY 322 SDOJLKLKLSLRIKNGDPTLKGJMHALKHSKTYHFPKVTQSLKKTIRFLHSFTWKLY 381
Db 340 qKlflemIngvgsvKIscl 359
QY 382 QKLFLEMIGNVOsvKISCL 401
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Search completed: Wed Aug 20 09:52:27 1997  
Job time : 64 secs.